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A CODE OF RULES

FOR THE

PREVENTION

OF

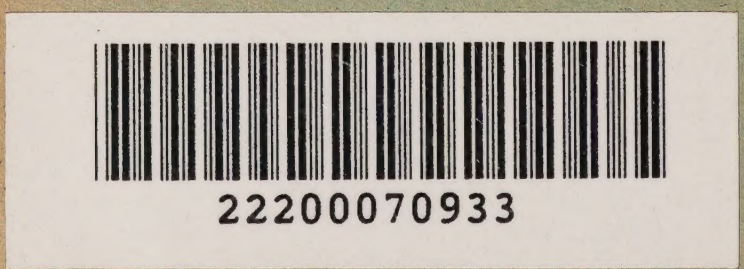
COMMUNICABLE DISEASES IN SCHOOLS

ISSUED BY

THE MEDICAL OFFICERS OF SCHOOLS ASSOCIATION

TENTH EDITION

LONDON
J. & A. CHURCHILL LTD
104 GLOUCESTER PLACE
PORTMAN SQUARE
1940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MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

FOUNDED - - 1884.

PRESIDENTS.

1884. SURGEON-GENERAL EVATT, A.M.S., M.D.
1885. THOMAS FULLER, M.D., M.R.C.S.
1886-89. SIR WILLIAM SAVORY, BART., F.R.C.S.
1890. JAMES ANDREW, M.D., F.R.C.P.
1891-94. WILLIAM HOWSHIP DICKINSON, M.D., F.R.C.P.
1895-97. EUSTACE SMITH, M.D., F.R.C.P.
1898-1900. HOWARD MARSH, F.R.C.S.
1901-04. SIR JAMES GOODHART, BART, LL.D., M.D., F.R.C.P.
1904-08. SIR THOMAS BARLOW, BART., K.C.V.O., M.D., F.R.C.P., D.Sc.
1908-13. CHARLES E. SHELLY, M.A., M.D., M.R.C.P.
1914-17. FREDERICK E. BATTEN, M.A., M.D., F.R.C.P.
1918-20. JAMES KERR, M.A., M.D., D.P.H.
1921-23. REGINALD C. ELMSLIE, O.B.E, M.B., M S., F.R.C.S.
1924-27. LANCELOT R. LEMPRIERE, O.B.E., B.A., M.B., B.Ch.
1928-29. ELWIN H. T. NASH, M.R.C.S., M.R.C.P., D.P.H.
1930-32. G. E. FRIEND, M.A., M.R.C.S., L.R.C.P.
1933-34. J. A. H. BRINCKER, M.A., M.B., D.P.H., F.I.C.
1935. W. G. WILLOUGHBY, M.D., M.R.C.S., L.R.C.P., D.P.H.
1936-37. J. LAMBERT, O.B E., M.A., M.D., B.CH., D.P.H.
1938. E. H. R. HARRIES, M.D., B.S., M.R.C.P., D.P.H.

HONORARY MEMBER.

LYTTELTON, THE REV. THE HON. E. A., M.A., D.D., D.C.L., late Provost, Eton College.

HONORARY LIFE MEMBERS.

KERR, JAMES, M.A., M.D., D.P.H., Consulting Medical Officer, L.C.C. late Medical Research Officer, Public Health Dept., L.C.C.

HAIG-BROWN, C. W., M.D., C.M., M.R.C.S., late Medical Officer, Charterhouse.

LEMPRIERE, L. R., O.B.E., B.A., M.B., B.Ch., late Medical Officer, Haileybury College.

LIST OF OFFICERS for the Year 1939-40.

PRESIDENT, 1938-1940.

HARRIES, E. H. R., M.D., B.S., M.R.C.P., D.P.H., Medical Superintendent, North Eastern Hospital, Public Health Dept., L.C.C.

PAST PRESIDENTS.

1904-1908.

BARLOW, Sir Thomas, Bart., K.C.V.O., M.D., F.R.C.P., D.Sc.

1918-1920.

KERR, James, M.A., M.D., D.P.H., Consulting Medical Officer, L.C.C.

1921-1923.

ELMSLIE, R. C., O.B.E., M.B., M.S., F.R.C.S., Surgeon, Orthopædic Department, St. Bartholomew's Hospital.

1924-1927.

LEMPRIERE, L. R., O.B.E., B.A, M.B., Ch.B., Late Medical Officer, Haileybury College.

1928-1929.

NASH, Elwin H. T., M.R.C.S., M.R.C.P., D.P.H., late Medical Officer of Health and School Medical Officer, Borough of Heston and Isleworth.

1930-1932.

FRIEND, G. E., M.A., M.R.C.S., L.R.C.P., Medical Officer, Christ's Hospital.

1933-1934.

BRINCKER, J. A. H., M.A.. M.B., D.P.H., F.I.C., late Principal Medical Officer, Public Health Department, L.C.C.

1935.

WILLOUGHBY, W. G., M.D., M.R.C.S., L.R.C.P., D.P.H., late Medical Officer of Health and Medical Officer to Eastbourne County Borough Schools.

1936-1937.

LAMBERT, J., O.B.E., M.A., M.D., B.Ch., D.P.H., Medical Officer, Wellington College.

VICE-PRESIDENTS.

First Elected.

1937 JEFFRIES, LILIAS MARGARET, Mrs., M.D., B.S., Medical Officer, Roedean School and Brighton & Hove High School.

1937 PENNEFATHER, C. M., M.D., Medical Officer, Harrow School.

1937 BOSTOCK, J.C., M.C., M.B., B.Ch., Medical Officer, Stowe School.

1938 LE FLEMING, Sir KAYE, M.A., M.D., B.C., M.R.C.S., L.R.C.P., Medical Officer, Canford School.

1938 CHAIKIN, G., B.A., M.R.C.S., L.R.C.P., Divisional Medical Officer, L.C.C.

1938 CLOW, ALICE E. SANDERSON, Mrs. B.Sc., M.D., B.S., late Medical Inspector, Ladies' College, Cheltenham.

1938 THOMAS, C. J., M.B., B.Sc., D.P.H., Senior Medical Officer, Public Health Department, L.C.C.

First Elected.

1939 PATON, J. H. P., M.B., Ch.B., Medical Officer, St. Andrew's School for Girls.

1939 BRUCE-PORTER, SIR BRUCE, K.B.E., C.M.G., M.R.C.S., L.R.C.P.

1939 HALLOWS, N. F., M.A., M.D., D.P.H., M.R.C.S., Resident Medical Officer, Marlborough College.

1939 MORLEY, E. B., M.B., B.S., M.R.C.S., L.R.C.P., Medical Officer, Mill Hill School.

HONORARY TREASURER.

1938 BRADLEY, W. H., M.A., M.D., 11-12, Wimpole Street, W.1.

HONORARY SECRETARY.

1936 SMITH, R. E., M.B., B.Ch., F.R.C.P., Medical Officer, Rugby School.

EXECUTIVE SECRETARY.

1937 NICHOLS, Miss D., Epsom College Office, 49, Bedford Square, London, W.C.1.

HONORARY AUDITORS.

THOMAS, C. J., M.B., B.Sc., D.P.H., Senior Medical Officer, Public Health Department, L.C.C.

BRINCKER, J. A. H., M.A., M.B., D.P.H., F.I.C., late Principal Medical Officer, Public Health Department, L.C.C.

HONORARY TRUSTEES.

BOOME, E. J., M.B., M.R.C.P., D.P.H., T.D., Principal Assistant Medical Officer, Public Health Department, L.C.C.

MORLEY, E. B., M.B., B.S., M.R.C.S., L.R.C.P., Medical Officer, Mill Hill School.

MEMBERS OF COUNCIL.

1937 BARBER, G. O., M.B., B.Ch., M.R.C.S., L.R.C.P., Medical Officer, Felsted School.

1938 ATTLEE, W., M.A., M.D., M.R.C.P., Member, Eton College Medical Board.

1938 BROWN Miss GWENDOLEN M.A., B.Ch., M.R.C.S., L.R.C.P., Late Medical Inspector, Cheltenham Ladies College.

1938 CLEMENTS, E. M., Mrs. M.D. (Ed.), D.P.H. (Durham), 6, Lyon Road, Harrow-on-the-Hill.

1939 ROE, C. Watney, M.R.C.S., L.R.C.P., Medical Officer, St. Paul's School, W. Kensington.

1939 GATES, E. A., M.D., M.R.C.P., Medical Officer, Westminster School.

1939 MITMAN, M., M.D., M.R.C.P., D.P.H., Medical Superintendent, L.C.C.

1939 ELLIOTT, C. C., D.S.C., M.D. (Birm.), M.R.C.S., L.R.C.P., Medical Officer to Seaford College and various Preparatory Schools.

1939 HALL, E. W., F.R.C.S. (Edin.), M.R.C.S., L.R.C.P., Medical Officer to The Grange, Hill Brow, Queenwood, Cholmley House and Rippingdale Schools, Eastbourne.

PUBLICATION COMMITTEE.

LAMBERT, J., O.B.E., M.A., M.D., B.Ch., D.P.H., Medical Officer, Wellington College.

BOOME, E. J., M.B., Ch.B., M.R.C.P., D.P.H., T.D., Principal Assistant Medical Officer, Public Health Department, L.C.C.

Preface to the Tenth Edition.

The new issue of the Code preserves the same general plan and format as its predecessor issued nearly twelve years ago. The temptation to expand, and thereby alter the character of the book was put aside. It was considered that the value of the Code consisted largely in its brevity and objectivity of statement, and that information upon the broader aspects of such subjects as infection and resistance should be sought in the appropriate textbooks. The Code therefore remains a "code of rules for the prevention of communicable diseases in schools"—with special reference to Public and Preparatory Schools. Nevertheless, every line has been subjected to close scrutiny by sub-committees of the Revision Committee and within the familiar framework many alterations in detail and considerable additions have been made. The alphabetical sequence of the communicable diseases has been retained for convenience of speedy reference.

In schools, as elsewhere, diseases of the upper respiratory tract, spread chiefly by droplet spray, are the most important, including as they do the haemolytic streptococcal infections. The short note introducing the rules for the control of "scarlet fever"—either overt as such or covert in the guise of "septic sore throat"—will, it is hoped, be of assistance.

Articles have been added upon the most elusive respiratory infections of all, viz., the common cold and influenza, and another upon glandular fever.

To the gastro-intestinal diseases, which formerly included only the enteric fevers, have been added sections on bacillary dysentery, brucellosis (undulant fever), epidemic nausea and food infections other than specific.

Noteworthy is a table giving in synoptic form the differential characters of the varieties of ringworm. The treatment of these troublesome infections has been dealt with in greater detail in an appendix. Against some of the common communicable diseases, specific methods of prevention of proved value are now practised and the latest information about these is included.

It is believed that the new edition of the Code reflects accurately the most recent knowledge available to the experienced medical officers who have served upon the Revision Committee.

E. H. R. HARRIES,

LONDON, 1940. *President.*

Preface to the First Edition.

In bringing this Code of Rules before the general public and the Medical and Scholastic professions in particular, the Medical Officers of Schools Association desire to say a few words as to its compilation.

On the formation of the Association, in 1884, one of the most urgent matters which forced itself to the front, as claiming immediate attention, was the need for the general adoption of more definite rules for guarding our great educational establishments from the outbreak and spread of preventible infectious disease.

With this object an attempt was made to ascertain the rules and customs which are at present enforced in such cases, by circulating to every school of any importance in the country an elaborate series of questions covering the ground of this inquiry.

The replies thus obtained proved very interesting, and contained much valuable material; at the same time they revealed wide differences of procedure in different institutions when dealing with the same conditions of disease, and, in some instances, a considerable laxity of precaution. Nothing could more clearly demonstrate the necessity for some definite and generally recognised standard of School Hygiene than the curiously divergent character of many of the answers furnished in response to our paper of questions on the commoner epidemic diseases.

In the course of their deliberations on the information thus collected, the Association have embodied opinions and suggestions from many special authorities on the several questions dealt with. It is hoped that the result of these labours may prove no less useful to parents and guardians, who deal with the home life of the children, than to the school authorities, since without the sympathy and intelligent co-operation of the former no real progress can be made in this great department of preventive medicine, which is fraught with so much benefit to the community at large.

The Medical Officers of Schools Association cannot allow this Code to go forth to the public without placing on record the great debt of gratitude which they owe to their indefatigable Secretary, DR. ALDERSMITH, the Medical Officer of Christ's Hospital. This Code is to a very large extent based on the valuable paper on "*The Preventive Treatment of Infectious Diseases in Public and High Schools*," read by him at *The Conference on School Hygiene*, at the International Health Exhibition. The extensive correspondence involved in communicating with a very large number of schools and of individuals in all parts of the Kingdom has been entirely in his hands; upon him devolved the heavy labour of comparing and collating the replies received from the various authorities consulted; and upon him, too, has fallen the duty of preparing this work for the press.

C. J. H. EVATT, M.D.,

Surgeon-Major Army Medical Staff,
President, M.O.S.A.

WOOLWICH;
January, 1885.

A CODE OF RULES

FOR THE

PREVENTION

OF

COMMUNICABLE DISEASES IN SCHOOLS

ADOPTED BY

THE MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

SECTION I.

GENERAL HYGIENE.

I. **General Hygiene.** All **sanitary arrangements** of a school should be inspected by a competent person half yearly, and any defect remedied as soon as possible.

Amongst other essentials, the following require special attention :—

1. All foul water **drains** should preferably be of iron piping; they must be efficiently ventilated, and cut off from the sewer by a disconnecting chamber.

2. All **soil or vent pipes** should be fixed outside the buildings; they must be straight, ventilated full bore, carried above the eaves, and properly disconnected from the sewer.

The **joints** of all soil and drain pipes and their branches must be air and water-tight.

3. **Closets** should be of a wash-down, preferably syphonic (Corbel) type, which prevents the accumulation of sediment or of sewer-gas. It is necessary that closets should be efficiently ventilated, and never situated in the basement.

4. No **drains** must pass under the school buildings.

In localities where there is no efficient drainage, **earth closets** may be unavoidable. They should be placed in detached buildings, emptied daily and provided with a sufficency of dry earth.

Cesspools, if they still exist, should be replaced by septic tanks with efficient filter beds.

5. **Overflow** and **waste pipes** from sanitary fittings must be properly trapped and disconnected, but rain-water pipes need not, if they are separate from soil drains.

6. No fixed **dust-bins** should be permitted, and each day's dust and refuse should be removed to a distance, and dealt with efficiently. **All dust-bins** must be kept covered.

7. All **drain gullies** must be kept clear and frequently flushed at regular intervals, *including* the holidays, otherwise the water in the traps may dry up and permit drain air to escape.

8. An accurate plan of drainage and of water, gas and electric light mains should be provided; copies of this should always be accessible, and kept up to date.

9. **Drains** and **gullies** from washing-up sinks should be flushed at least once a week with a gallon of boiling water, to which a handful of washing soda is added, to cleanse the drain of grease and accumulated debris.

II. **Senior and Junior Schools.** In schools where there are pupils whose ages vary between wide limits, it is advantageous to have **distinct establishments** in separate localities, to house younger and older pupils respectively. By this arrangement epidemics (especially of measles) may be restricted to one establishment.

III. **Medical Responsibility.** A most important safeguard in preventing and dealing with infectious diseases in schools is **undivided medical responsibility.**

1. The entire school population, including all masters and servants and their families, should be under the personal supervision, not necessarily treatment, of a single medical authority. This may consist of the School Medical Officer or a Medical Board. Either the Medical Officer or the Medical Board should be appointed by, and be responsible to, the Governing body, but must respect the wishes of the Headmaster as far as possible. The Medical authority should possess full control regarding the admission into the school of all boys who are known to have recently had any illness, or have been exposed to infection; and also over the whole arrangements for quarantine and disinfection, and should have power to act immediately if any sanitary measures are urgently needed. Unless equipped with such powers and able to speak with a single voice the medical authority of a school is not in a position to detect every weak point in the line of sanitary defence, and is unable to appreciate the earliest warnings of developing disease or to take prompt measures for restricting its extension with any assurance of success.

2. The medical officer of the school or some other expert in public health should **periodically inspect** the entire school

premises; and in the case of public schools, should report to the governing body any alterations desirable from a sanitary point of view.

3. An **annual report** including a return of school illnesses from the medical officer to the governing body of the school is very desirable.

IV. **Water Supply.**—Whatever its source, the **water supply** must be above suspicion. Chemical and bacteriological examination should be made at least monthly, unless this is already done by a responsible public body. In the event of any suspicion the water should be chlorinated.

1. Whenever possible, the **drinking water** should be obtained from pipes on a constant service; or, if the supply must be intermittent, from cisterns distinct from those supplying water-closets, urinals, and slop sinks.

2. All **cisterns** (which should be suitably placed, properly covered and easily accessible) must be frequently inspected and periodically cleansed.

3. When well-water is used, contamination by drains, surface washings, or even cesspools is a possibility, and the water should always be chlorinated.*

4. If **filters** must be used, they should be of the pressure type and sterilised at least once a fortnight. Care should be taken that they are in good working order, with neither cracks nor flaws.

V. **Milk Supply.—Milk** is such a valuable food that every measure should be taken to be certain that the supply is adequate and free from the risk of conveying infection. The safest way at present of ensuring this is by pasteurisation. The use of this method, however, should not allow authorities to be lax in the production, transport and storage of milk. Milk should, if possible, be obtained from a dairy under the control of the school authorities. If this is impossible the school authority should take steps to ensure that the dairy from which the supply is obtained is inspected at regular intervals to ascertain that the cows are healthy, and that the milking, cooling and transport arrangements are satisfactory. Milk should be stored in the house in covered vessels for as short a time as possible, but if left overnight should be kept in a refrigerator.

*In cases in which the slightest suspicion of contamination exists, an analysis should be made as often as the Medical Officer deems admisable.

The varieties of milk are:—

1. **Tuberculin Tested.** The herd is tuberculin tested and freed from positive reactors; in addition, the milk must pass stringent tests for cleanliness and keeping qualities. If this milk has also been pasteurized, it is called **Tuberculin Tested (Pasteurised),** and if bottled on the farm it is **Tuberculin Tested (Certified).**

2. **Accredited Milk.** The herd is regularly inspected by a veterinary surgeon. The standard of cleanliness is as for Tuberculin Tested Milk, and if the milk is bottled on the farm it is called **Accredited Milk (Farm Bottled).**

3. **Pasteurized Milk** is milk held at a **temperature of 145° to 150° F** for 30 minutes. It is essential that the apparatus for pasteurization subjects all the milk to this temperature for this period. Grossly contaminated milk should not be pasteurized, nor does pasteurization prevent subsequent contamination. It must be recognised that the keeping power of pasteurized milk is less than that of raw milk.

Milk, however treated, can easily be re-infected. Attention is directed to the fact that such re-infected milk can give rise to epidemics. School authorities should insist on milk at least of the standard of accredited milk. The expense and difficulties of bottling can be avoided if the school owns the churns and is responsible for their disinfection, preferably as soon as they are empty.

A contract for the supply of milk should always include a penal clause containing a proviso that milk can be purchased elsewhere and charged against the contractor, if at any time the milk supplied by him is proved on delivery not to be "of the nature, substance and quality demanded."

Boiling milk for five minutes will kill all organisms commonly present, but this procedure alters the nutritive value of milk whereas pasteurization does not.

VI. **Food Supplies.** The food supplies and stores generally should be inspected at intervals by the Medical Officer: he should also visit the dining halls and kitchens periodically to satisfy himself as to the cooking and service of food.

The dietaries, their balance and composition in respect of calories, protein, fat and carbohydrate contents and vitamins, the variation in meals, their distribution and times should be considered and investigated by the School Medical Officer.

VII. **Dormitories.** The Board of Education has laid down the following minimum standards :—

(i) At least three feet between beds.

(ii) Floor space not less than 65 sq. ft., cubic space not less than 700 cub. ft. per bed. Ventilation must be adequate and " through," by arranging windows on opposite sides of the room.

These minima are useful guides, but the distance between **bed-centres,** rather than between **beds,** is all important and should be at least 6 feet. Providing bed-spacing reaches this standard, floor-space and cubic space are of secondary importance.

VIII. **Laundry.** Every large school should have its own **laundry.** If this be impossible, precautions should be taken to prevent linen from other sources being washed with the school linen.

SECTION II.

INFIRMARY, SANATORIUM OR SICK HOUSE.

IX. Every large school should have its own **Sanatorium,** and if properly planned, equipped and staffed, infectious diseases can be nursed in the same building as non-infectious cases. There must be some separate, single-bedded ward units with separate sanitary arrangements, bathrooms, nurses' rooms and kitchen. These units can be used for different infections, *e.g.*, measles, diphtheria or typhoid fever, but must be disinfected after occupation (See Appendix C).

1. The **infectious and observation wards** should be at the *top* of the Infirmary or in a separate wing and approached by a separate well-ventilated staircase.

At least two staircases are desirable, one for the use of infectious cases, which are usually nursed on the top floor.

Whilst it is obviously impracticable to provide sufficient accommodation for major epidemics, the number of beds for all purposes should be 10 to 20 per cent. of the school population. Of these beds at least 25 per cent. preferably 40 per cent. should be one-bedded wardlets for observation and infectious cases. Preparatory schools, with their comparatively non-immune pupils, require a larger proportion than public schools. By this means secondary infection and cross-infection can be minimised. Adequate rooms for meals and recreation are essential.

Great care should be taken in choosing the regular nursing staff. All nurses should be fully trained, should preferably have experience in nursing infectious diseases and should be state registered. For junior nurses in preparatory schools a recognised training in a children's hospital may be sufficient.

Provision should be made for the accommodation, in or near the sanatorium, of extra nurses during epidemics.

X. **Sick Room.** Small schools should have an adequate number of **sick rooms** and every Housemaster should provide in his house, two such rooms for every fifty boys. The rooms should be single, well-ventilated and isolated as far as possible from the rest of the accommodation.

XI. **Fire.** Adequate provision must be made for safeguarding buildings and for the escape of their occupants from fire.

SECTION III.

MEDICAL EXAMINATION OF SCHOLARS ON ADMISSION, ETC.

XII. **Entrance Certificates. A Certificate*** should be required on the entry of each pupil, giving his Medical History, including the Infectious diseases from which he has suffered, signed by the parent or guardian not earlier than the day before admission.

1. It is also desirable to request immediate notice to be given to the School Authorities by the parents or guardians in the event of any case of infectious disease occurring in the house within three weeks after the entry, or the return, of a pupil to school. A request to this effect should be printed on the certificate form. (See pp. 50 and 51).

2. The infectious diseases from which the pupil has already suffered should be recorded on this primary certificate, and the paper kept for future reference.

3. In all schools it is advisable for the Medical Officer to make a **physical examination** of each pupil on entrance. In all junior schools, a special examination of the scalp should be made for Ringworm, and in the case of girls for nits.

4. The entrance certificate should have a record of all previous vaccinations. Primary vaccination in infancy is the ideal, and re-vaccination before entry to school is strongly recommended

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**Vide* Appendix A.

but is not insisted upon, providing it is understood that on the occurrence of small-pox in the vicinity any pupil may be immediately vaccinated and further measures taken as are advised by the local Medical Officer of Health. No pupil who falls ill with small-pox will be nursed in the school but be sent to an isolation hospital.

XIII. **Infection or Exposure to Infection during the Holidays.** At the end of each term a copy of the school's medical regulations should be sent to parents, detailing what should be done if the pupil contracts, or is exposed to, an infectious disease, and the conditions under which he may return at the beginning of term (See Appendix E for model).

An alternative is for every parent to fill up a form at the beginning of each term stating that his child has not been exposed to infectious diseases within the limits of their incubation periods. It is essential to supply parents with a list of quarantine periods, preferably as laid down in this code.

EXEATS. During term-time pupils may contract infectious diseases when on "exeat." Parents should, therefore, be warned by the School Authorities not to have their children home when there is even a suspicion of infectious disease in their own homes, nor should the children be allowed to enter any house where such exists. When a pupil has been exposed to any infection, the School Authorities should be informed **at once.**

SECTION IV.

GENERAL PRECAUTIONS AGAINST THE INTRODUCTION AND SPREAD OF INFECTIOUS DISEASE.

XIV. **Infectious disease** existing in a neigbouring town may be introduced into a school by intercourse with the townspeople. It is advisable to place the town "out of bounds" if any infectious disease be prevalent there.

Day pupils, masters, servants, tradesmen or others having access to the school may introduce infection. They should be required to report at once to the school medical officer any infectious disease in their family, and his instructions should be followed. Where the contact is known to have had a definite attack of the disease and is immune he may be allowed to return provided he is kept away from the source of infection.

SECTION V.

MEASURES TO BE ADOPTED WHEN INFECTIOUS DISEASE APPEARS IN A SCHOOL.

XV. **Removal and isolation.**—Directly a case of infectious disease has been recognised* it should be isolated. (*Vide* Rules ix and x). In some cases it may be advisable that the patient should be removed to a fever hospital.

Notice should at once be given to the matrons or others in charge of the pupils to watch carefully for any symptoms of illness, and to bring any child looking ill under the notice of the school medical officer.

1. Suitable precautions must be taken for the provision and **Housing** of nurses in the case of scarlet fever, diphtheria and small pox.

2. Scraps and **refuse** of all kinds should be placed in a suitable watertight and closed receptacle and taken away to be **burned immediately.** The **crockery** should be disinfected by boiling for ten minutes before leaving the ward. All possible precautions should be taken to prevent the spread of infection, which may occur through the neglect of apparently trivial details.

3. The nurses in charge of the infectious wards or sanatorium should take care that patients do not throw paper balls, letters, or anything out of the windows.

4. Letters must be written in pencil and disinfected by ironing. Envelopes can be addressed by the house-master or nursing staff.

5. Cats, dogs and other animals should be excluded from the sanatorium premises.

6. **Visitors.**—Owing to the possibility of spreading infection, visiting in general is undesirable. If allowed it should be at the discretion of the medical officer or matron.

XVI. **Removal of Bedding, Etc.**†—The **bedding** (if not removed with the patient to the infectious ward or sanatorium), together with clothes, books, and everything that is likely to

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*For the notification of cases of infectious disease see Appendix B.

†These precautions are unnecessary in the case of measles, rubella, mumps; they may be advisable in the case of scarlet fever, diphtheria and whooping cough, but should always be employed in varicella, variola, and the enteric group of fevers.

harbour infection, should be removed at once and be disinfected if necessary. The sleeping place occupied by the pupil in his dormitory should also be disinfected (*Vide* Appendix C.)

XVII. **Disinfection of Sick Room.**† In each case after the patient has been removed, the bedstead occupied by the pupil, the floor and adjoining wall should all be thoroughly cleaned, and the windows opened. (*Vide* Appendix C.)

XVIII. **Disinfection of Bedding.**† The **mattress and bedding** which has been used in any infectious case should be disinfected before again being employed. All linen should be disinfected before it leaves the infected premises.

XIX. **Isolation until Free from Infection.** All patients must be retained in the infectious ward of the infirmary, or in the sanatorium, until free from infection (*vide* Section VI.), and, before leaving, they and their clothes and possessions should be disinfected if necessary.

A general disinfection, by cleaning and airing, of all wards which have been occupied should be carried out at the end of the epidemic.

XX. **When Free from Infection.** With regard to this most important question, the periods named under each disease in this connection **refer to Freedom from Infection ONLY.** It is obvious that many patients, though free from infection, will not be physically fit to resume a normal life for some longer period. This applies particularly to patients recovering from diphtheria, measles, scarlet fever and whooping-cough.

XXI. **Notice to Parents.** In every case of illness the **parents** or **guardians** should be informed at once, and supplied regularly with information about progress. No operation, etc., should be performed without the parents' consent except in exceptional circumstances. It is most desirable, in replying to inquiries made by parents with respect to any case of serious illness occurring in a school, that the precise terms used by the medical officer in describing the nature or progress of the malady should be communicated, either directly by him or through the house-master.

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†These precautions are unnecessary in the case of measles, rubella, mumps; they may be advisable in the case of scarlet fever, diphtheria and whooping cough, but should always be employed in varicella, variola, and the enteric group of fevers.

XXII. **The Dispersion of a School** on account of an outbreak of infectious disease is always a serious step to take, and should very rarely be required. It may lead to a wide-spread distribution of the disease.

In the opinion of the Association a serious outbreak of an infectious disease in a school affords a sufficient justification for the temporary removal of healthy children by their parents or guardians, should they see fit to take this step; but the onus of removing the pupils should rest with the parents, and not with the school authorities. The latter should rarely go beyond advising parents to take away their children.

Each case, however, must obviously be decided on its own merits, and if CLOSURE is considered necessary, such a step should only be taken after consultation with the local Medical Officer of Health and the Ministry of Health.

The parents should be informed at once by the Head Master of all the circumstances of the case, and of the measures being taken to prevent the spread of the disease, together with precise advice as to the precautions to be observed with regard to isolation and quarantine: such information should be handed by the parent to the local (home) Medical Officer of Health.

—If pupils are to be sent home, it is necessary to give the parents sufficient time to make the needful arrangements for isolating them; parents should be informed by the School Authorities of the period of incubation of the illness.

XXIII. **Duties of School Authorities.** Just as it is incumbent on parents and guardians to do all in their power to prevent infectious diseases from entering schools, so it is the duty of School Authorities to take every possible precaution that infectious diseases are not carried by pupils from the school to their homes. If any infectious disease is present in a school during the last weeks of term, parents should be informed of the presence of the disease and its nature, its period of incubation and the date of the last case, so that parents can decide, possibly after consulting their home doctor, whether isolation is necessary. Every reasonable step should be taken to prevent infection being taken home, and any suspicious case should be detained.

SECTION VI.

DEFINITION OF TERMS.

Carrier. A person who, without symptoms of a communicable disease, harbours and is liable to disseminate the specific micro-organisms.

Contact. A person known to have been sufficiently near an infected individual for transmission of the causal agent to have occurred.

Disinfection. The destruction of the vitality of pathogenic micro-organisms by chemical or physical means (See Appendix C).

Droplet Infection. The transmission of infectious agents by minute particles of discharges from the upper respiratory tract in the act of sneezing, coughing, laughing and even talking.

Fumigation. A process by which the destruction of insects, *e.g.*, mosquitoes, body lice, and animals, *e.g.*, rats, is attempted by the use of gaseous agents.

Immunes. Persons known to be resistant to a particular communicable disease by the possession of an immunity. Immunity may be :—

1. Natural.
2. Acquired by a previous attack or latent infection.
3. Artificial *(a)* Passive.
   (b) Active.

As a rule an attack of measles, mumps, chickenpox, whooping cough or smallpox confers a lasting immunity, and therefore a subsequent exposure to infection need not exclude a pupil from school, as he is unlikely to contract the disease a second time.

An immune person may, however, be a carrier.

Isolation. The separation of infectious patients or carriers to prevent the direct or indirect transmission of the infectious agent to others.

Quarantine. The limitation of the freedom of movement of contacts for a period of time equal to the longest incubation period of the disease to which they have been exposed.

Susceptibles. Persons who are presumed to be non-immune *i.e.*, liable to acquire the disease in question if exposed to a source of infection.

SECTION VII.

COMMUNICABLE DISEASES.

ACUTE INFECTIOUS CONJUNCTIVITIS (PINK EYE).

1. **Infectious Agent.** A variety of organisms may be responsible, most commonly Koch-Weeks bacillus, Morax-Axenfeld bacillus or pyogenic cocci.

2. **Source of Infection.** The conjunctivæ and nasal secretions of infected persons.

3. **Mode of Transmission.** Contact with infected persons or with articles freshly soiled by them.

4. **Incubation Period.** Irregular, but usually one to two days.

5. **Period of Communicability.** From the onset until redness of the eye has disappeared and all discharge has ceased.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* Clinical symptoms confirmed where possible by bacteriological examination

(2) *Isolation.* Medical supervision or segregation is usually adequate.

(3) *Immunisation.* None.

(4) *Quarantine.* If exposed, three days from the latest exposure to infection.

(5) *Disinfection.* Disinfection of all articles soiled by discharges.

(b) General measures :—

(1) Education in personal cleanliness.

(2) **The avoidance of the use of common bathwater, towels, toilet articles or clothes.**

7. **Return to School** may be considered safe from the point of view of infection so soon as all discharge has ceased, provided that the pupil is otherwise fit. In cases where a mydriatic has been used in treatment, work should not be resumed until the pupil of the eye is normal.

BRUCELLOSIS.

(Undulant Fever, Malta Fever, Mediterranean Fever).

1. **Infectious Agent.** Brucella melitensis and Brucella abortus.

2. **Source of infection.** The milk, urine, blood and tissues of infected animals, especially goats and cattle.

3. **Mode of transmission.** By the ingestion of infected milk ; by contact with infected animals.

4. **Incubation period.** 6 to 30 days, commonly 14 days.

5. **Period of communicability.** Transmission from one human being to another practically never occurs.

6. **Methods of control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* Clinical symptoms confirmed by specific agglutination tests, and bacteriological examination of the blood and urine.

(2) *Isolation.* None.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* None. Ordinary sanitary precautions.

(6) *Terminal disinfection.* None.

(7) *Investigation of source.* Attempt to determine source of infection, usually infected milk.

(b) **General measures.**

(1) Pasteurisation of milk.

(2) Elimination of infected animals from herds by agglutination tests.

CEREBROSPINAL FEVER.

1. **Infectious Agent.** Neisseria meningitidis (meningococcus).

2. **Source of Infection.** Discharges from the nose and mouth of infectious persons. Healthy persons who have never had the disease but have been in contact with cases of the disease or other carriers, may act as carriers, especially during epidemics. Such healthy carriers are not uncommonly found independent of epidemic prevalence of the disease.

3. **Mode of Transmission.** By droplet spread from infected persons and carriers and indirectly by contact with articles freshly soiled with the nasal and mouth discharges of such persons.

4. **Incubation Period.** One to ten days, commonly two to five. The shorter incubation periods are common in epidemics. Occasionally longer periods when a person is a carrier for a time before developing the disease.

5. **Period of Communicability.** During the clinical course of the disease and until the specific organism is no longer present in nasal and mouth discharges of patient. The same applies to healthy carriers with persistence of infectious discharges.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of disease.* Clinical symptoms confirmed by microscopic and bacteriological examination of the spinal fluid, and by bacteriological examination of nasal and pharyngeal secretions.

(2) *Isolation* of infected persons until 14 days after onset of disease or until two negative swabs from the naso-pharynx, at intervals of not less than four days, are obtained.

(3) *Immunisation.* None.

(4) *Quarantine.* None (see epidemic measures).

(5) *Concurrent disinfection* of discharges from nose and mouth, and of articles soiled therewith.

(6) *Terminal disinfection.* Cleaning.

(b) General measures :—

(1) Search for carriers among families and associates of recognised case by bacteriological examination of posterior nares of all contacts.

(2) Education as to personal cleanliness and necessity of avoiding contact and droplet infection.

(3) Prevention of overcrowding in living quarters, in places of public assembly, and in inadequately ventilated closed quarters.

(c) Epidemic measures :—

(1) Increase separation of individuals and ventilation in living and sleeping quarters for such groups of people as are specially exposed to infection because of their occupation or some necessity of living conditions. Bodily fatigue and strain should be minimised for those especially exposed to infection.

(2) Carriers should be quarantined until nasal and pharyngeal secretions are proved by bacteriological examination to be free from the infecting organisms.

7. The disease affects the nervous system, and entails a protracted convalescence. Patients recovering will not be able to return to school till long after any risk of infection is past. Attacks differ much in severity and type, and as abortive or missed cases may convey infection whilst going about in school, they must be borne in mind, and if suspected segregated pending further investigation.

COMMON COLD.

1. **Infectious Agent.** Probably a filterable virus which may allow disproportionate growth of some of the normal nasal flora.

2. **Source of Infection.** Discharges from nose and mouth of infected persons.

3. **Mode of Transmission.** By droplets of catarrhal discharges and by direct contact with infected articles, enhanced by faulty ventilation, and by numerous factors which may act by lowering the resistance of the exposed individual.

4. **Incubation Period** may vary from one or two hours to two days.

5. **Period of Communicability.** Variable. In all types of "cold" the infectivity is more marked in the early stage of the catarrh.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease* presents no difficulty. In closed communities all individuals, but especially children, should be encouraged to report immediately at the onset of the "cold," and should if possible be isolated at least for the acute catarrhal stages. The temperature should always be taken and if found to be above normal the patient should be put to bed as well as isolated. In the case of non-febrile catarrh, isolation until the acute stage is over is the ideal.

(2) *Immunisation* against virus, none; but vaccine against secondary organisms may be of value.

(3) *Quarantine.* None.

(4) *Concurrent Disinfection.* Unless the patient is in hospital or isolated, little can be done effectively. If under control he should be supplied with paper handkerchiefs, which should be placed in a proper receptacle immediately after use and burnt later. Pockets in clothes may be infected from soiled handkerchiefs and will remain infective for some time, though probably not for long. The hands and face should be washed frequently, at least before every meal.

(5) *Terminal Disinfection.* Unnecessary except for personal linen.

(b) General Measures:—

Epidemic colds may be sometimes controlled by attention to personal hygiene, early reporting of colds, and attention to diet. In very bad weather the temporary cessation of compulsory games, etc., may be wise.

7. **Return to School.** In afebrile cases as soon as the catarrhal stage is over. In febrile catarrh the patient's return to school must depend on the nature and severity of any concomitant symptoms, but care should be exercised before a return to normal life and games is permitted.

DIPHTHERIA.

1. **Infectious Agent.** Corynebacterium diphtheriæ (Klebs-Loeffler bacillus).

2. **Source of Infection.** Discharges from diphtheritic lesions of nose, throat, ear, conjunctiva, vagina, and wound surfaces. Secretions from the nose, throat and ears of carriers.

3. **Mode of Transmission.** By droplet spread, directly by personal contact, indirectly by articles freshly soiled with discharges, pencils and spoons or through infected milk or milk products.

4. **Incubation Period.** Usually 2 to 5 days, with limits of 1 to 7 days.

5. **Period of Communicability.** Until virulent bacilli have disappeared from the secretions and the lesions. The persistence of the bacilli after the lesions have healed is variable. In fully three-fourths of the cases they disappear within two weeks. In 95% of cases they disappear in 4 weeks. In exceptional cases virulent bacilli remain in the throat and discharges for many months.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* By clinical symptoms with confirmation by bacteriological examination of throat and nose or other site; in doubtful cases the Schick test should be performed immediately. Serum given 4 to 6 hours later will not invalidate the test. If serum is given on first examination the Schick test is of no value.

(2) *Isolation.* Until there is no longer any sore throat, or any abnormal discharge from the throat, nose, ears, eyes or vagina, and no cutaneous pustulation and that at least two successive bacteriological examinations of the pharyngeal and nasal mucus for the specific bacillus made at an interval of not less than four days have been attended with negative results, each examination having been made not less than six hours after the discontiuuance of local antiseptic application. If the organism persists after convalescence is established, virulence test should be performed.

A similar rule applies to every nurse who has been attending on a case of diphtheria, and a like procedure should be followed before she resumes her ordinary duties.

(3) *Immunisation.* See Appendix D.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* All articles which have been in contact with the patient and all articles soiled by discharges from the patient.

(6) *Terminal disinfection.* At the end of the illness thorough airing and sunning of the sick room with cleaning or renovation.

(7) *Investigation of source.* Clinical examination for missed cases and for those with some unhealthy condition of the nose, throat or ears. Such cases should be Schick tested and swabbed for the presence of *virulent* diphtheria bacilli. If the organism is found to be non-virulent on two successive occasions the carrier is innocuous.

(b) General measures :—

(1) Schick testing and active immunisation of all susceptibles. See Appendix D.

7. The pupil may return to school in four weeks, provided that convalescence is completed, that there is no longer any sore throat, or any abnormal discharge from the throat, nose, ears, eyes, or vagina, no cutaneous pustulation, and that at least two successive bacteriological examinations of the pharyngeal and nasal mucus for the specific bacillus have given negative results, each examination having been made not less than six hours after the discontinuance of local antiseptic applications.

DYSENTERY (Bacillary).

1. **Infectious Agent.** Dysentery bacilli, particularly Sonne and Flexner strains in this country.

2. **Source of Infection.** Bowel discharges of infected individuals. Healthy carriers may occur.

3. **Mode of Transmission.** By the ingestion of contaminated milk or food; from objects soiled with excreta; by flies. Contaminated water is not a common mode. Infected portable baths have been implicated.

4. **Incubation Period.** From one to seven days.

5. **Period of Communicability.** From the onset of the disease until the bowel discharges are free from organisms; usually a few days only; sometimes weeks or months in convalescent carriers.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* Clinical symptoms confirmed by bacteriological examination of the bowel discharges. Serological examinations are less dependable in Sonne infections than in Flexner infections.

(2) *Isolation.* Barrier nursing or separate cell if the nursing technique is dependable; otherwise, under hospital conditions. Release from isolation after the cessation of symptoms should be determined by two successive negative cultures of the stools, collected not less than 24 hours apart.

(3) *Concurrent disinfection.* All bowel discharges and articles soiled by them. Disinfection of baths after use during outbreaks of the disease.

(4) *Terminal disinfection.* Cleaning.

(5) *Quarantine.* None.

(6) *Detection of source.* Bacteriological and serological examination of contacts to detect carriers.

(7) *Immunisation of contacts.* Efficient antigens for the prevalent types of dysentery are not available.

(8) *Exclusion* of suspected milk, water or other articles from diet pending the discovery of the infected person or other cause of contamination.

(b) General measures:—

(1) Protection and purification of public water supplies and cisterns, and prevention of subsequent contamination.

(2) Pasteurisation of public milk supplies; boiling of milk if its purity is in question.

(3) Supervision of the preparation and handling of food.

(4) Hand washing after the use of the toilet, particularly by food handlers.

(5) Prevention of fly-breeding; screening.

(6) Sanitary disposal of human excreta.

(7) Supervision of carriers and their exclusion from handling food or working in public waterworks.

ENTERIC FEVER GROUP.

(Typhoid Fever). (Paratyphoid A & B).

1. **Infectious Agent.** Typhoid bacillus. Paratyphoid bacillus A or B.

2. **Source of Infection.** Bowel discharges and urine of infected individuals. Healthy carriers are common.

3. **Mode of Transmission.** Conveyance of the specific organism by direct or indirect contact with the source of infection. Among indirect means of transmission are contaminated water, milk, ice creams and shellfish. Contaminated flies have been common means of transmission in epidemics.

4. **Incubation Period.** From seven to twenty-three days averaging ten to fourteen days.

5. **Period of Communicability.** From the appearance of prodromal symptoms, throughout the illness and relapses during convalescence, and until repeated bacteriological examinations of the discharges show persistent absence of the infecting organism.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms, confirmed by blood culture, specific agglutination test and bacteriological examination of the bowel discharges, or urine.

(2) *Isolation.* Preferably under hospital conditions. Release from isolation should be determined by two successive negative cultures of stool and urine from specimens collected not less than twenty-four hours apart.

(3) *Immunisation.* By T.A.B. Vaccine, of susceptibles or household of the patient who have been exposed, or may be exposed during the course of the disease.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Disinfection of all bowel and urinary discharges and articles soiled with them.

(6) *Terminal disinfection.* Cleaning.

(b) General measures :—

(1) Protection and purification of public water supplies and cisterns.

(2) Pasteurisation of public milk supplies.

(3) Supervision of other food supplies, and of food handlers.

(4) Prevention of fly breeding.

(5) Sanitary disposal of human excreta.

(6) Extension of immunisation by T.A.B. Vaccine as far as practicable in communities where the disease is prevalent. For close contacts of typhoid fever, particularly debilitated subjects, passive immunisation by Felix's anti-typhoid serum.

(7) Supervision of typhoid carriers, and their exclusion from the handling of foods.

(8) Systematic examination of fæcal specimens from those who have been in contact with recognised cases, to detect carriers.

(9) Persons who contemplate travelling should be protected by T.A.B. Vaccine.

(10) Exclusion of suspected milk supplies pending the discovery of the person or other cause of contamination.

(11) Exclusion of water supply, if contaminated, until adequately treated with hypochlorite or other efficient disinfectants, unless all water used for toilet, cooking and drinking purposes is boiled before use.

7. The pupil is unlikely to be fit to return to School until long after all danger of infection is safely over.

EPIDEMIC ENCEPHALITIS.

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** Probably discharges from the nose and throat of infected persons, or articles freshly soiled therewith.

It is supposed that there are healthy carriers during prevalence of the disease.

3. **Mode of Transmission.** By droplet spread and contact with an infected person or a carrier of the virus, or by contact with articles freshly soiled with the discharges of the nose or throat of such persons.

4. **Incubation Period.** Undetermined. Believed to be 2-14 days; commonest, 10.

5. **Period of Communicability.** Probably during the febrile stage of the disease.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease*, by clinical symptoms.

(2) *Isolation* of recognised cases for one week after onset.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Discharges of the nose and throat and articles soiled therewith.

(6) *Terminal disinfection.* Cleaning.

(b) General measures:—

(1) Search for and examination of cases during periods of prevalence.

(2) Isolation of suspected febrile cases pending diagnosis.

7. The disease affects the nervous system, and entails a protracted convalescence. Patients recovering will in all probability not return to school until all risk of infectivity is past. Attacks differ much in severity and type, and as abortive or missed cases may convey infection whilst going about in school they must be borne in mind, and if suspected, segregated pending further observation.

Late, or post-encephalitic symptoms may produce serious physical, mental and moral degeneration, and should be carefully looked for.

EPIDEMIC NAUSEA.

(Epidemic Vertigo).

1. **Infectious Agent.** Unknown.

2. **Source of Infection.** Unknown.

3. **Mode of Transmission.** Uncertain. Possibly water-borne; probably a droplet infection. Carriers may play a part.

4. **Incubation Period.** Twelve hours to eight days.

5. **Period of Communicability.** Unknown.

6. **Methods of Control.**

(a) Infected individual and his environment:—

(1) *Recognition of the disease* and of relapses.

(2) *Isolation* for 48 hours. Clinical symptoms have ceased usually in less than six hours.

(3) *Concurrent disinfection.* The vomitus should be disinfected and also the stools if diarrhoea occurs. Vomiting is usual: diarrhoea rare. Soiled articles.

(4) *Terminal disinfection.* Cleaning.

(5) *Quarantine.* None.

(6) *Detection of source.* Enquiries for convalescent or recent cases among domestic staff.

(*b*) General Methods:—

As for Bacillary Dysentery.

FOOD INFECTIONS.

Definition. A group of diseases characterised by diarrhoea, or diarrhoea and vomiting, excluding specific infections such as enteric fever, dysentery and brucellosis.

1. **Infectious Agents.** A variety of known and unknown organisms. Of known etiological agents the most common are organisms of the enteriditis or salmonella groups, or staphylococci. Chemical poisons (such as antimony compounds) cause outbreaks.

2. **Source of Infection.** Bowel discharges of infected individuals. Sometimes from healthy carriers. Infections, *e.g.*, boils, about the hands and arms of food handlers.

3. **Mode of Transmission.** By the ingestion of food or milk contaminated by human beings, flies or rodents.

4. **Incubation Period.** One to 24 hours, sometimes longer.

5. **Period of Communicability.** From the onset of illness until the stools are free from the infecting organism.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease* by clinical symptoms and the type of outbreak. Confirmation sometimes possible from bacteriological and chemical examination of bowel discharges, vomits and food responsible.

(2) *Isolation until* clinical recovery. If the organism is known, release from quarantine should be determined by two negative cultures of stools collected not less than 24 hours apart.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection* of bowel discharges, vomitus and articles soiled by them.

(6) *Terminal disinfection.* Cleaning.

(7) *Investigation of the source.* Exclusion of suspected food from diet pending examination. Medical and bacteriological examination of food handlers for source of infection in bowels, skin, etc.

(b) General measures:—

(1) Supervision of the preparation and handling of food.

(2) Hand washing after the use of the toilet by food handlers.

(3) Prevention of fly breeding and extermination of rodents.

(4) Measures to ensure clean water and milk supplies.

(5) Pasteurisation of milk.

(6) Use of domestic refrigerators for storage of food and milk.

GLANDULAR FEVER. (INFECTIVE MONONUCLEOSIS).

1. **Infectious Agent.** Probably filterable virus.

2. **Source of Infection.** Infected persons.

3. **Mode of Transmission.** Unknown.

4. **Incubation Period.** Five to fourteen days, exceptionally 21 days.

5. **Period of communicability.** Uncertain.

6. **Methods of control.**

(a) The infected individual and his environment.

(1) *Recognition of disease.* Onset acute with malaise and fever. Temperature usually about 100° though it may rise to 103° F. or higher. The glands, cervical and occipital, enlarge about the end of the first week and may become very swollen and tender. Suppuration does not occur and the swelling usually subsides in a month. Some cases run a longer course. A rash, of indefinite morphology but sometimes resembling the rose spots of typhoid, occurs in a fair proportion of cases, between the fourth to tenth day. Urticarial, macular and papular eruptions have also been noted.

Mononucleosis without anaemia is the blood picture.

Serological diagnosis for the presence of sheep's heterophil antibodies provides useful confirmatory evidence. (Paul Bunnell test).

Constitutional disturbance is slight.

2. *Isolation* of the infected person is necessary.

3. *Immunisation.* None.

4. *Quarantine.* None.

5. *Concurrent disinfection.* Special measures beyond ordinary hospital routine is unnecessary.

6. Terminal disinfection by cleaning, fresh air and sunlight.

7. Return to school will be determined by the clinical course.

IMPETIGO CONTAGIOSA.

1. **Infectious Agent.** Streptococcus pyogenes; Staphylococci may be secondary invaders.

2. **Source of Infection.** The sores of infected persons; infected articles of clothing or toilet.

3 **Mode of Transmission.** By direct personal contact or through infected articles of clothing or toilet. The condition is also auto-inoculable.

4. **Incubation Period.** Variable but short.

5. **Period of Communicability.** As long as cutaneous lesions are present.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.*

(2) *Isolation.* Exclusion from games and isolation of all but the mildest cases.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection* of all soiled clothing and toilet articles.

(6) *Terminal disinfection.* Final disinfection by steam of all clothes worn during treatment.

(b) General measures :—

(1) Complete disinfection by steam of all games clothes, etc., of others who may have been in contact with the infected person within two to seven days before recognition of the disease according to its severity.

(2) Instructions in the principles of personal hygiene and avoidance of the use of common towels, toilet articles or clothes.

7. **Return to School.** When lesions have ceased to appear and the sites of infection have healed.

INFLUENZA.

1. **Infective Agent.** A virus ; complications being caused by numerous secondary invaders.

2. **Source of Infection.** Oral and nasal discharges of infected individuals.

3. **Mode of Transmission.** By droplets and indirectly by contact with soiled linen, clothing and articles of personal use, if recently contaminated.

4. **Incubation Period.** Twenty-four to seventy-two hours, but may be much shorter.

5. **Period of Communicability.** Probably from the commencement of the prodromal to the end of the febrile stage.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* By clinical symptoms and by routine temperature taking in times of epidemic invasion.

(2) *Isolation* of the infected person from the non-infected should be immediate and complete.

(3) *Immunisation.* At present, none.

(4) *Quarantine.* Usually impracticable.

(5) *Concurrent disinfection* of discharges from mouth and nose, and of articles soiled thereby.

(6) *Terminal disinfection* by cleaning, fresh air and sunlight.

7. **Return to school** will depend upon the duration of the febrile stage and the nature of any complication.

In no circumstances should patients resume school until a week after the temperature has been normal, and games should not usually be permitted for another week, even after a mild uncomplicated attack. Considerable care must be exercised in all cases where tachycardia or any complication has occurred.

MEASLES.

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** Buccal and nasal secretions of an infected individual.

3. **Mode of Transmission.** By droplet spread from person to person, indirectly through articles freshly soiled with the buccal and nasal discharges of an infected individual.

One of the most easily transmitted of all communicable diseases.

4. **Incubation Period.** Seven to fourteen days, rarely as long as eighteen ; longer where convalescent serum is administered during the incubation period.

5. **Period of Communicability.** During the period of catarrhal symptoms and until the cessation of abnormal mucous secretions—minimum period of nine days; from four days before to five days after the appearance of the rash.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms. Special attention to rise of temperature, Koplik spots and catarrhal symptoms in exposed individuals.

(2) *Isolation.* During period of communicability.

(3) *Immunisation.* By use of serum or whole blood of convalescent measles patients, or of any healthy adult who have had measles, given within five days after exposure to a known case of measles, the attack in the exposed person may be averted in a high percentage of instances; if not averted, the disease may be modified. Given later, but at a time prior to the clinical onset of the disease, convalescent serum usually modifies the severity of the attack, and the patient acquires the usual lasting immunity from the disease. Immune globulin (placental extract) may be used as an alternative.

(4) *Quarantine.* None, provided susceptible contacts are kept under medical or nursing observation. This should include daily examination and diurnal taking of the temperature. Pyrexial contacts should be isolated pending diagnosis.

(5) *Concurrent disinfection.* All articles soiled with the secretions of the nose and throat.

(6) *Terminal disinfection.* Thorough cleaning.

(b) General measures :—

(1) Education as to special danger of exposing young children to those exhibiting acute catarrhal symptoms of any kind.

(2) In institutional outbreaks immunisation with convalescent serum of all minor inmates who have not had measles is of value in checking the spread of infection, and in reducing mortality. (See Appendix D.)

7. Pupils may return to school in ten days from the date of the appearance of the rash, provided convalescence is established. It must be understood that this period refers only to the probable persistence of infectivity. It may be advisable for the the sake of the patient to prolong the convalescent period considerably.

MUMPS.

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** Secretions of mouth and possibly nose.

3. **Mode of Transmission.** By droplet spead from infected persons or contact with articles freshly soiled with discharges from nose or throat of such infected persons.

4. **Incubation Period.** Fourteen days to twenty-eight days. Most common period—eighteen days.

5. **Period of Communicability.** Unknown, but assumed to persist until parotid or other glands have returned to normal size.

6. **Methods of Control.**

(a) The infected indivual and his environment:—

(1) *Recognition of the disease.* Inflammation of Stenson's duct may be of assistance in recognising early stages. Diagnosis usually made on swelling of parotid. In some cases a swelling of the submaxillary or sublingual salivary glands or orchitis, may be the only outward sign of the disease.

(2) *Isolation.* Separation of patients from non-immunes and exclusion of patient from school and public places for period of presumed infectivity.

(3) *Immunisation.* None.

(4) *Quarantine.* None. Exposed susceptibles should be regularly inspected for the onset, or the presence of, the initial symptoms of the disease such as fever, swelling or pain of the parotid or other salivary glands, from twelfth to twenty-eighth day from date of last exposure.

(5) *Concurrent disinfection.* All articles soiled with the discharges from the nose and throat of patient.

(6) *Terminal disinfection.* None.

(b) General measures :— None.

7. Pupils may return to school in two weeks from the onset, provided that one clear week has elapsed since the complete subsidence of all swelling. Mumps may sometimes affect one side of the face only, spreading to the other side after several days, so that complete subsidence should be dated from the gland last affected.

PERTUSSIS (Whooping Cough).

1. **Infectious Agent.** Hæmophilus pertussis (Bordet's bacillus).

2. **Source of Infection.** Discharges from the laryngeal or bronchial mucous membranes of infected persons.

3. **Mode of Transmission.** By droplet spread from an infected person or contact with articles freshly soiled with the discharges of such persons or animals.

4. **Incubation Period.** Three to ten days.

5. **Period of Communicability.** Particularly communicable in the early catarrhal stages before the characteristic whoop makes a clinical diagnosis possible. The catarrhal or irritative stage usually lasts three to fourteen days, sometimes followed by a paroxysmal stage characterised by whooping, which may last from one to several weeks. At the end of the catarrhal stage infectivity rapidly declines and freedom from infection can be demonstrated by "cough-plates," often as early as twenty-one days after the first clinical manifestations.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms, supported where possible by bacteriological examination of "cough-plates" and by blood count. Serological examination late in the disease may reveal complement—fixing antibodies.

(2) *Isolation.* Separation of the patient from susceptible children, and exclusion of the patient from school and public places for the period of four weeks from onset, or earlier if proved free from infection by bacteriological examination.

(3) *Immunisation.* Prophylactic vaccines prevent the disease or decrease the severity of attacks.

(4) *Quarantine.* None, providing observation by nurses is carried out. Any pupil with cough or catarrh must be isolated immediately.

(5) *Concurrent disinfection.* Discharges from the nose and throat of the patient and articles soiled with such discharges.

(6) *Terminal disinfection.* Cleaning of the premises used by the patient.

(b) General measures:—

(1) Education on the dangers of association or contact with those showing catarrhal symtoms with cough.

(2) Active immunisation of the susceptible school population.

7. Pupils may return to school at the end of isolation if fully convalescent.

POLIOMYELITIS AND POLIOENCEPHALITIS.

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** Discharges from the nose, throat and possibly bowel of infected persons, or articles recently soiled therewith. Carriers, and missed abortive cases are common.

3. **Mode of Transmission.** By droplet spread from an infected person or carrier, or indirectly by contact with articles freshly soiled with the nose, throat, or bowel discharges of such persons and probably by milk or food.

4. **Incubation Period.** Usually 2 to 10 days, with limits of 2 to 14 days.

5. **Period of Communicability.** Unknown; apparently not more than twenty-one days from the onset of the disease, but may precede onset of clinical symptoms by several days.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms, assisted by chemical and microscopical examination of the spinal fluid.

(2) *Isolation.* Of all cases for three weeks from febrile onset.

(3) *Immunisation.* None.

(4) *Quarantine.* Of exposed children of the household and of adults of the household whose vocation brings them into contact with children, or who are food handlers, for fourteen days from last exposure to a recognised case.

(5) *Concurrent disinfection.* Nose, throat and bowel discharges and articles soiled therewith.

(6) *Terminal disinfection.* Cleaning.

(b) General measures:—

(1) Search for and examination of all sick children, staff and domestic servants should be made.

(2) All children with fever or catarrhal or gastro-intestinal attacks should be isolated pending diagnosis.

7. The disease affects the nervous system, and entails a protracted convalescence. Patients recovering will not be able to return to school until all risk of infectivity is past. The disease varies much in severity, and as abortive or missed cases may convey infection whilst going about in school they must be borne in mind, and if suspected isolated during observation.

RUBELLA.

1. **Infectious Agent.** Probably a filterable virus.

2. **Source of Infection.** Secretions of the mouth and possibly of the nose.

3. **Mode of Transmission.** By droplet spread from a patient or by articles freshly soiled with the discharges from the nose or throat of the patient.

4. **Incubation Period.** From nine to nineteen days.

5. **Period of Communicability.** Until the rash has disappeared.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms.

(2) *Isolation.* Separation of the patient from non-immune children, and exclusion of the patient from school and public places for the period of presumed infectivity.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Discharges from the nose and throat of the patient and articles soiled by discharges.

(6) *Terminal disinfection.* Airing and cleaning.

7. Pupils may return to school when the rash has disappeared, provided there is no persistence of nasal or other symptoms.

SCABIES.

1. **Infectious Agent.** The Acarus Scabiei (Sarcoptes scabiei).

2. **Source of Infection.** The hands or body of an infected person. Infected clothing (especially bed clothing), lavatory seats, etc.

3. **Mode of Transmission.** Directly by contact with an infected person. Indirectly by contact with such person's clothes or the infected seat of a lavatory, etc.

4. **Incubation Period.** The presence of an impregnated female, or both a male and female Acarus is necessary to start an infection. The female at once burrows and lays her eggs. These hatch in the course of about 4 days and the young at once burrow in their turn. In about two to three weeks the disease becomes established.

5. **Period of Communicability.** So long as fertile Acari survive on the infected person, or eggs are present in the skin.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* By finding the parasite, or less commonly the eggs.

(2) *Isolation.* As the disease is contagious, it is necessary to segregate the infected person pending disinfestation.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Of all clothing and bedding removed during treatment.

(6) *Terminal disinfection.* Thorough cleaning of the person and disinfection of all clothing by dry heat.

(b) General measures :—

Education in personal hygiene.

7. Pupils may safely return to school when all lesions have healed.

STREPTOCOCCAL INFECTIONS IN GENERAL.

Hæmolytic streptococci (streptococcus pyogenes) of many serological types are responsible for many local and general diseases, depending upon the virulence of the organism and the resistance of the patient, *e.g.*, whitlow, impetigo, tonsillitis (septic sore throat), scarlet fever, erysipelas, septicæmia, etc. Organisms of the same serological type may be responsible for different pathological conditions, *e.g.*, whitlow, tonsillitis, scarlet fever and septicæmia; on the other hand, the same clinical condition, *e.g.*, scarlet fever, may be caused by several types of hæmolytic streptococci. In ordinary scarlet fever and in septic sore throat there is a local lesion of the throat—a tonsillo-pharyngitis, and in this respect the two conditions are identical. The appearance of the rash in scarlet fever depends upon two additional factors—the production of an erythrogenic (rash-producing) toxin by the organism in the throat, and the susceptibility of the patient's skin to this toxin, *i.e.*, a Dick positive reaction. If either of these

factors is absent, septic sore throat, not scarlet fever, is the result. In every epidemic of scarlet fever, a percentage of those infected suffer from septic sore throat only.

In **ordinary scarlet fever** the local lesion—the source of the erythrogenic toxin—is the throat. In **surgical scarlet fever** the local lesion is in the skin *e.g.*, in an infected burn or surgical wound.

Typing, if it can be carried out, is extremely useful in tracing the sources and paths of infection of outbreaks of streptococcal diseases.

I. SCARLET FEVER.

1. **Infectious Agent.** Streptococcus pyogenes (hæmolytic streptococci).

2. **Source of Infection.** Discharges from the nose, throat, ears, abscesses or wound surfaces, and articles freshly soiled therewith. The nose and throat discharges of carriers may also spread the disease.

3. **Mode of Transmission.** By droplet spread from an infected person, or by direct contact with infectious discharges, or indirectly by articles freshly soiled with discharges of an infected person, or through contaminated milk, or milk products.

4. **Incubation Period.** One to seven days, usually two to four days.

5. **Period of Communicability.** Four weeks from the onset of the disease, or longer if abnormal open sores or wounds are present. Cases of surgical scarlet fever are non-infectious when wounds have healed and discharges ceased.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* By clinical symptoms. In doubtful cases additional information can be obtained by Dick testing, swabbing for hæmolytic streptococci (which may also be typed) and the Schultz-Charlton blanching test.

(2) *Isolation.* In home or hospital, maintained in each case until the end of the period of infectivity.

(3) *Immunisation.* Exposed susceptibles as determined by the Dick test may be actively immunised by scarlet fever toxin. See Appendix D.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Of discharges from the nose and throat of the patient, and articles soiled by such discharges.

(6) *Terminal disinfection.* Thorough cleaning.

(b) General measures :—

(1) Daily examination of exposed children and of other possibly exposed persons for a week after last exposure.

(2) Schools should not be closed where daily observation of the children by a physician or nurse can be provided for.

(3) In school and institutional outbreaks, immunisation of all exposed children with scarlet fever toxin may be advisable. See Appendix D.

(4) Education as to special danger of exposing young children to those exhibiting acute catarrhal symptoms of any kind.

(5) Pasteurisation of milk supply. Exclusion of known contacts or carriers from handling milk.

7. Pupils may return to school in four weeks from the date of the appearance of the rash, provided convalescence is completed, and there is no sore throat, DISCHARGE FROM THE EAR OR NOSE, suppurating or recently enlarged glands, or eczematous patches. Desquamation, *per se*, may be disregarded.

Doubtful cases of Scarlet Fever.—One of the most anxious and difficult of the problems which confront the Medical Officer concerns the diagnosis and management of **doubtful cases of scarlet fever**. Only those who have had actual experience can realise to the full the frequency with which such cases occur, and the great difficulty of dealing with them. The ideal method would be to isolate each suspicious case in a separate room, under proper supervision. Assistance in diagnosis may be afforded by the Dick and Schultz Charlton Tests and swabbing for hæmolytic streptococci.

II. SEPTIC SORE THROAT.

1. **Infectious Agent.** Streptococcus pyogenes (hæmolytic streptococci).

2. **Source of Infection.** The same as in Scarlet fever.

3. **Mode of Transmission.** As in Scarlet fever.

4. **Incubation Period.** One to seven days, usually two to four days.

5. **Period of Communicability.** Presumably during the continuance of clinical symptoms. The carrier stage may follow convalescence and persist for some time.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms. Bacteriological examination of the lesions or discharges from the tonsils and naso-pharynx may be useful.

(2) *Isolation.* During the clinical course of the disease and convalescence.

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent disinfection.* Articles soiled with discharges from the nose and throat of the patient.

(6) *Terminal disinfection.* Cleaning.

(b) General measures:—

(1) Exclusion of suspected milk supply from public sale or use, until pasteurised. Exclusionof human cases or carriers from handling milk or milk products.

(2) Education in the principles of personal hygiene, prevention of droplet spread and avoidance of common towels, drinking and eating utensils.

Colds and Sore Throats (including tonsillitis, quinsy, ulcerated or septic throat and Vincent's Angina) are symptomatic of bacterial infection of the nasopharynx. THEY ARE ALL DEFINITELY INFECTIOUS and may be the first sign of serious diseases such as scarlet fever, diphtheria, measles or influenza.

TINEA (Ringworm).

	All varieties	T. Tonsurans	T. Circinata	T. Pedis (Athlete's foot).	T. Cruris.
Parts affected		Scalp.	Body.	Feet, particularly interdigital clefts.	Groins, natal cleft, occasionally axillae.
Clinical Points		Usually circinate, scaly patches with stumps of hairs (microsporon). Ceases after puberty.	Usually circinate, scaly, marginate patches.	Commonly interdigital soft skin (soft corns); occasionally eczematous or hyperkeratotic areas.	Red, circinate, scaly marginated patches.
(1) Infectious Agent	Ringworm fungi belonging to various groups.	Microspora (commonly). Trichophyta.	Microspora, Trichophyta, Epidermophyta.	Epidermophyta	Epidermophyta.
(2) Sources of infection	Other infected persons; occasionally animals, birds.	Usually other infected persons.	Usually other infected persons; occasionally animals and birds (Trichophyta) and from cats (microspora).	Other infected persons.	Other infected persons.
(3) Modes of transmission	Directly from person to person by skin to skin contact; more commonly by contact with infected articles. Transmission is easy in the ordinary conduct of home or recreation, particularly indoor pursuits.	Indirectly via hair brushes, caps, chairs, etc., or possibly direct from scalp to scalp.	Direct contact with infected human beings or animals; indirectly from infected articles. Autoinfection from stumps of hair or scales in T. tonsurans.	Indirectly from infected floors, floor-coverings, mats, etc., particularly if moist, as in bathrooms, swimming pools, changing rooms, gymnasia, etc., from infected towels, socks, etc.	Indirectly from infected articles of clothing as sports gear. Autcinfection by towels from feet in T. pedis.
(4) Incubation period	Uncertain, probably 3 to 14 days.	6-8 days.	3-7 days.	?	?

TINEA (Ringworm) *continued.*

	All varieties.	T. Tonsurans	T. Circinata	T. Pedis (Athlete's foot)	T. Cruris
(5) Period of communicability	So long as living fungus is present: fungus may re-remain dormant for long periods after apparent cure.				
(6) Methods of control					
(a) The infected individual and his surroundings					
(i) Recognition of the disease	Clinical signs with confirmation by microscopic and cultural examinations for fungus.	Clinical signs. Examination of stumps of hair for fungus. Examination of scalp with U.V.L. through Wood's glass filter for florescence of stumps (microsporon).	Clinical signs. Examination of scrapings for fungus.	Clinical signs. Examination of scrapings for fungus.	Clinical signs. Examination of scrapings for fungus.
(ii) Isolation	All forms are definitely contagious, but measures depend upon the type of disease.	Exclusion from School till cured.	Isolated till effective control is established.	Isolation impracticable, as the condition is widespread and chronic; medical supervision to prevent spread.	Isolated till effective control is established.
(iii) Immunisation	None.				
(iv) Quarantine	None.				
(v) Concurrent disinfection	Of all infected articles.	Of all hair, caps, etc.	Of infected clothing.	Of all socks, towels, linen, shoes, etc.	Of all underwear, towels, etc.
(v) Terminal disinfection	Of all infected articles.				
(b) General measures	Education in personal hygiene.				

VARICELLA (Chicken Pox).

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** The infectious agent is present in the lesions of the skin and of the *mucous membrane*, (more commonly). The latter appearing early and rupturing as soon as they appear, render the disease communicable early, that is, before the exanthem is in evidence.

3. **Mode of Transmission.** By droplet spread, and directly from person to person. Indirectly through articles freshly soiled by discharges from an infected person.

4. **Incubation Period.** Eleven to nineteen days.

5. **Period of Communicability.** Probably seldom more than five days, but certainly the limit is the disappearance of scabs on the skin and mucous membrane, and healing of the lesions.

6. **Methods of Control.**

(a) The infected individual and his environment :—

(1) *Recognition of the disease.* Clinical symptoms. The chief public health importance of this disease is that cases thought to be chickenpox in persons over 15 years of age, or at any age during an epidemic of smallpox, are to be investigated to eliminate the possibility of smallpox.

(2) *Isolation.* Exclusion of patients from school, and prevention of contact with non-immune persons, until every primary scab has fallen off and the skin lesions have healed, particular attention being paid to the *scalp.*

(3) *Immunisation.* None.

(4) *Quarantine.* None.

(5) *Concurrent Disinfection.* Articles soiled by discharges from lesions.

(6) *Terminal disinfection.* Thorough cleansing.

(b) General measures :—

None.

The possibility of some cases of herpes zoster originating an outbreak of varicella, or vice versa, should be borne in mind. It is advisable to apply the same precautions to herpes zoster as to varicella.

7. The pupil may return to school when every scab has fallen off, particular attention being paid to the scalp. There should be no sores, scratches or abscesses.

VARIOLA (Smallpox).

1. **Infectious Agent.** A filterable virus.

2. **Source of Infection.** All discharges from the body, lesions of the mucous membranes and skin.

3. **Mode of Transmission.** By droplet spread and direct personal contact; by articles soiled with discharges from lesions.

4. **Incubation Period.** Ten to fourteen days, commonly twelve.

5. **Period of Communicability.** From first symptoms to disappearance of all scabs and crusts.

6. **Methods of Control.**

(a) The infected individual and his environment:—

(1) *Recognition of the disease.* Clinical symptoms. The local Medical Officer of Health must be consulted in any case of doubt.

(2) *Isolation.* Hospital isolation in screened wards, until the period of infectivity is over.

(3) *Immunisation.* Vaccination.

(4) *Quarantine.* Isolation of all contacts until pronounced safe after vaccination with virus of full potency. Daily medical observation of all recently vaccinated contacts until height of reaction is passed, if vaccination was performed within twenty-four hours of first exposure, otherwise for sixteen days from last exposure.

(5) *Concurrent disinfection.* Of all discharges. No article to leave the surroundings of the patient without boiling or equally effective disinfection.

(6) *Terminal disinfection.* Through cleaning and disinfection of premises.

(b) General measures :—

General vaccination in infancy, re-vaccination of children on entering school, and of entire population when the disease appears in a severe form (see page 14).

7. The pupil may return to school when every scab has fallen off, and the skin lesions have all healed.

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APPENDIX A.

The following Certificates are suggested for the prevention of infectious diseases in schools, and as a guide to the school medical officer.

MEDICAL HISTORY. (FORM NO. 1).

[To be presented before admission into a school.]

This certificate must be filled up and signed by the Parent or Guardian before the child is sent to the school. The suppression of important information as to past or present health, or as to exposure to infection, is liable to be regarded as a breach of contract.

Name..... Age.....

1. Has the pupil had—

Chickenpox?.....	If so, when?.....
Diphtheria?.....	If so, when?.....
Rubella (German Measles)?.....	If so, when?.....
Measles?.....	If so, when?.....
Mumps?.....	If so, when?.....
Scarlet Fever?.....	If so, when?.....
Smallpox?.....	If so, when?.....
Whooping-cough?.....	If so, when?.....
Enteric Fever?.....	If so, when?.....
Rheumatic Fever?.....	If so, when?.....
Any other infectious disease?.....	If so, what?.....
	and when?.....

2. Has the pupil been successfully :—

(a) Vaccinated against smallpox?.....	If so, when?.....
(b) re- ,, ,, smallpox?.....	If so, when?.....
(c) actively immunised against diphtheria?.....	If so, when?.....
(d) ,, ,, against scarlet fever?.....	If so, when?.....
(e) ,, ,, against whooping cough?.....	If so, when?.....
(f) ,, ,, against any other disease?.....	If so, when?.....

3. Has the pupil—

had fits? ..... If so, when?.....

been ruptured? ..... If so, when?.....

had any discharge from the ear?.....

If so, when?.....

4. Is the pupil subject to any special form of illness, *e.g.*, incontinence of urine?.....

.....

5. Has the pupil had any surgical operation? If so give particulars. .....

6. Does the pupil suffer from any ailment, or constitutional peculiarity, affecting the general health, sight, hearing, etc., etc.? .....

.....

7. Are the teeth in good order?.....

8. Is the pupil in your opinion, fit in all respects for the ordinary school life? ....

.....

.....

Parent (or Guardian).

Date.....

HEALTH CERTIFICATE. (Form No. IIA).

[*To be presented by the pupil on returning to the school after the holidays*].

This certificate must be filled in and signed by the parent or guardian not earlier than the day before that on which the pupil leaves for school.

I hereby certify that, to the best of my knowledge and belief, ...has not, during the holidays now ending suffered from or been exposed to any infectious disease, or entered any house where such disease existed. He is in good health and fit for ordinary school life and work.

.....

Date..... *Parent (or Guardian).*

N.B.—If the pupil be exposed to any infection during the vacation, *immediate* notice of the facts is to be sent to the school authorities; and the pupil is on no account to return to school without permission having first been obtained from them.

If, within three weeks after the pupil has returned to school infectious illness breaks out in his home, *immediate* notice of the facts must be forwarded to the School Authorities.

HEALTH CERTIFICATE. (Form No. IIB).

(Alternative to IIa.)

If your son is ill during the holidays, please inform his housemaster as soon as possible, stating all details bearing on his case, and the opinion of the doctor who attends him.

If in the course of the holidays, your son is exposed to measles, chicken pox, rubella (German Measles), mumps or whooping cough, diphtheria, and scarlet fever, he may return to school when term begins, provided that he is kept away meanwhile from the source of infection.

If your son should happen to be in the company of anyone, who during the next four days, develops poliomyelitis, encephalitis or cerebro-spinal fever, he should forthwith be put into quarantine, and all the clothes he was wearing at the time should be disinfected by steam before he wears them again. He must remain in quarantine until certified as safe by your medical adviser, unless he has already had a well marked attack of the disease in question, in which case he may return to school when terms begins.

Please be careful to have your son examined by a doctor if you notice any suppurating or inflamed scratches or spots on his hands, face, scalp or body, or any chafing in his groins, in case they should prove to be impetiginous, or due to tinea cruris.

You are specially requested not to send your son back with a sore throat or a heavy cold.

If, within three weeks after the pupil has returned to school, infectious illness breaks out in his home, *immediate* notice of the facts must be fowarded to the School Authorities.

See also Appendix E.

CERTIFICATES FOR USE IN CASE OF ILLNESS AND AFTER EXPOSURE TO INFECTION.

CERTIFICATE, AFTER RECOVERY FROM ILLNESS
(Form No. III)

[*To be filled in, signed and forwarded to the Medical Officer the day before the boy returns to school, when the rules required by the school to be observed in such cases have been complied with*].

(*Insert address*).....

.....

I hereby certify that.....,House.....,
who was taken ill with..... .....
on.....is considered convalescent by his Medical Attendant; and that the period, after which you stated (in the letter dated.....) that the boy might return to School, expired on.....
To the best of my knowledge and belief he has not, since the beginning of his illness, been exposed to any other infection.

The boy is in good health and fit for School life and work, and will return direct to the School Infirmary, with all his clothes, books, &c., on.....about.....P.M.

.....

Date..... (*Parent or Guardian.*)

CERTIFICATE, AFTER EXPOSURE TO INFECTION.

(Form No. IV.)

[*To be filled in, signed, and forwarded to the Medical Officer, the day before the boy returns to School, after requisite period of quarantine.*]

(Insert address).....

.....

.....

.....

I hereby certify that.....

who was exposed to the infection of.....

.....will have completed the quarantine period of..... .....

.....days on.....(in accordance with the terms of your letter of.....); and that during this period he has not, to the best of my knowledge and belief, been exposed to the infection of that, or any other disease.

The boy will return direct to the School Infirmary with all his luggage, on..... about.....P.M.

.....

Date..... *(Parent or Guardian.)*

(Form No. V.)

[*To be sent to the Parent or Guardian by the School Authorities when a pupil has recovered from an infectious illness at School, and is about to be sent home.*]

....., who was taken ill with.....on....., is now convalescent, and is believed to be free from infection.

.....

Date.....

To.....

(Form No. VI.)

[*To be sent to the Parent or Guardian when a child returns home after having been exposed to infection at school.—Vide* Rule XXI.]

..... { may have been / was } exposed to the infection of .....on or about.....

The incubation period of the disease is about.....days; he should therefor be isolated, or kept under observation for at least.....days, dating from..... If in good health at the end of that time,.....may then be considerd to have escaped the disease.

.....

Date.....

To.....

APPENDIX B.

NOTIFICATION OF INFECTIOUS DISEASE.

Every medical practitioner "attending on or called in to visit" any patient suffering from an infectious disease, shall immediately on becoming aware that such patient is suffering from a notifiable disease, send a certificate giving all particulars to the Local Medical Officer of Health.

The requisite certificate forms are supplied gratis by the Local Authorities, who pay a fee of 2s. 6d. for each certificate thus sent in to them—unless the case occurs in a public institution, when the fee is 1s. The notification fee for measles and whooping cough in all cases is 1s.

A public school, a college, or a university is *not* "a public body or institution" within the meaning of the Act; and the fee of 2s. 6d. is therefore due in respect of each case of infectious disease notified as occuring amongst the members of such establishments.

It will be observed that every medical man who, in the exercise of his professional duties (as a consultant or otherwise), sees and recognises any case of the scheduled infectious diseases, is, technically, bound to notify, and can claim a fee for doing so. Practically such multiple notification is not insisted on, and a single notification of any case is regarded as a sufficient compliance with the requirements of the Act.

N.B.—The sending in of this Certificate is held by the Ministry of Health as constituting a legal claim for payment.

NOTIFIABLE DISEASES.

The following diseases are notifiable:—

Cholera, Diphtheria, Erysipelas, Scarlet Fever, Smallpox, Typhus, Typhoid, Enteric, Relapsing, Continued and Puerperal Fever, Puerperal Pyrexia, Acute Primary Pneumonia, Acute Influenzal Pneumonia, Enteric Fever (including Typhoid and the Para-typhoids), Typhus Fever, Relapsing Fever, Plague, Dysentry, Tuberculosis, Ophthalmia Neonatorum, Cerebro-spinal Fever, Acute Poliomyelitis, Acute Polio-encephalitis, Encephalitis Lethargica, Malaria, Measles and Whooping Cough.

APPENDIX C.

DISINFECTION.

General Theory of Disinfection.

The purpose of disinfection is the destruction of the germs of disease. Many methods, both chemical and physical are practised, and some elaborate devices such as fumigation have been proved useless and have given place to the simple methods, such as washing with soap and hot water, exposure to fresh air and sunlight.

The patient is the usual source of infection, and disinfection should start as near the source as possible. All discharges from the patient should be disinfected as soon as possible after they have left the patient. This implies CONCURRENT DISINFECTION. At the end of an illness all articles which may have been contaminated with infectious discharges must be disinfected. This is TERMINAL DISINFECTION, and it is obvious it will be of less importance if concurrent disinfection has been thorough.

Methods of Disinfection.

Heat.

Total Destruction by Heat. For some diseases, such as the common cold, the discharges should be burnt. Paper handkerchiefs or pieces of linen should be used and, when contaminated, put into a paper bag and burnt.

If linen handkerchiefs are used they should also be put into a paper bag and the nurse should boil the handkerchiefs before they are sent to the laundry. The bag should be burnt.

Dressings, such as those from discharging ears, mastoids, appendicitis or other wounds, should also be burnt.

Boiling Water. Crockery and cutlery, which may convey infection, must be kept in boiling water for 10 minutes before being sent to the kitchen.

Steam Disinfection for Clothing, Blankets, Linen, Etc.

High-pressure steam is the most suitable and the quickest means of destroying all disease germs, including the most resistant spores. A modern apparatususes "dry saturated steam," *i.e.*, it contains no droplets nor fine mist. In this condition, its powers of penetration and of carrying and transferring heat are at a maximum. The goods to be disinfected are put into a cylinder with a door at each end, so that "dirty" articles can be put in at one end and removed at the other, thus preventing the risk of the disinfected articles coming into contact with fresh infection at the dirty end. The disinfector has a cradle into which the goods are put.

The first preliminary is the production of a vacuum in the cylinder, as the presence of air prevents the thorough penetration of the goods by the steam. This process has been perfected now, so that the vacuum-producing apparatus is efficient and at the same time is cheap. In the past it was very expensive. The cylinder is surrounded by a jacket. The pressure of steam in the cylinder is 20 lbs. per square inch and the temperature is 260 degrees F. or 127 degrees C., and in the jacket is 30 lbs. per square inch and the temperature of steam is 275 degrees F. or 135 degrees C. There is a special hot-air apparatus which ensures the provision of dry saturated steam in the cylinder for disinfection, and this also provides hot air for airing purposes. It is essential to have a higher pressure of steam in the jacket to keep the steam in the cylinder dry and to prevent condensation on the walls. After the disinfection, the steam is ejected and hot air is drawn into the cylinder. The clothes are thus aired and can be used or worn immediately after complete disinfection. The clothes will come out perfectly dry, even if they were damp when they were put in.

Usually, goods remain in the disinfector at the pressures maintained above for 15-20 minutes. After this the vacuum is re-formed, all dampness is evaporated, and then hot air is admitted for the airing process.

Clothes, such as those supposedly infected with the organisms of impetigo, ringworm or scabies, or linen and blankets contaminated by infectious patients, should be folded carefully

before being put in a disinfector. No harm results from the disinfection if carefully done, whether the material is flannel or cloth. Linen is best put into the disinfector in a dry state and should be transferred from the ward to the sterilising room in a container which will not allow germs to escape.

Disinfection of articles like Boots, Books, Hair Brushes, Furs, Etc.

This is best done by putting them in the disinfector with formalin vapour. The chamber is exhausted of air and the goods remain in contact with the formalin vapour for 45 minutes.

Disinfection of Excreta by Chemicals.

Chemical Disinfectants, all of which are poisonous, are needed only for disinfection of the germs in faeces and urine from patients with such diseases as typhoid fever.

Mercury perchloride (corrosive sublinate) 1-1,000 kills non-sporing organisms in 30 minutes ; 1-500 solution kills sporing organisms in 60 minutes. It corrodes metals.

Carbolic acid (phenol) and the cresols in dilutions of 1-20 kills non-sporing organisms in 1 hour.

Bleaching powder (chlorinated lime), when fresh, contains 33 per cent. available chlorine. Enough bleaching powder should be added to cover the excreta : water is added to make a five per cent. solution. The faeces should be broken up and allowed to stand for an hour.

Many " disinfectants " are chiefly deodorants.

Disinfection of the Room and its Contents.

Germs, once they have left the body, live a comparatively short time, especially if they are exposed to fresh air and sunlight. A room from which an infectious boy has been removed should be ventilated as thoroughly as possible. The floor and bedstead, after being vacuum cleaned, should be washed with soap and water. The mattress and pillows should be put in the fresh air for 24 hours. The mattresses of boys suffering from scabies, tinea cruris, etc., should be sterilised by dry steam.

Disinfection of Convalescents.

This is best done by giving them a thoroughly good bath and completely clean clothing, new toothbrush, etc.

The Importance of Concurrent Disinfection of the Attendants.

Nurses attending infectious cases may carry infection to other patients. The hands must be thoroughly washed after each contact with an infectious patient. Masks should be used if the nurse is in attendance on readily transmissable droplet infections. Gowns should be worn when attending infectious patients.

Nurses must report immediately any sore throat or other infectious illness to the medical officer and be assured that they will not be thought to be making a fuss in so doing.

APPENDIX D.

The following is a summary of the present position as regards the recognition of susceptibility to diphtheria, scarlet fever, whooping cough, measles, and of the modern methods of dealing with these infections.

I. Diagnosis.

(a) Diphtheria.

In doubtful *cases* of diphtheria :—

1. The Schick test is generally positive.
2. *C. diphtheriæ* can be recovered by swabbing the local lesions. Diphtheria carriers should only be diagnosed when
   (1) The Schick test is negative.
   (2) *Virulent C. diphtheriæ* can be recovered from the infected site. If typing is performed *gravis* and *intermedius* strains can be regarded as virulent without performing the virulence test.

Carriers of non-virulent diphtheria bacilli and of diphtheroids are of no epidemiological importance and can be disregarded.

(b) Scarlet Fever.

Assistance in the diagnosis of doubtful cases of scarlet fever can be obtained by :—

1. *The Dick Test*, which is usually positive.
2. *Swabbing* the local lesion—from which hæmolytic streptococci can usually be recovered in large numbers.

3. *Schultz-Carlton blanching test*—applied to an area of the rash.

(c) Whooping Cough.

Confirmation of the diagnosis of whooping cough in the earliest and most infectious stage can be obtained by examination of cough plates for the *Hæmophilus pertussis.* Immunological tests are of value in a retrospective diagnosis as the antibodies do not appear early in the disease. The length of infectivity can be determined from negative cough plates and this test frequently permits earlier discharge from isolation.

II. Immunisation.

Passive immunisation (administration of antitoxin) should only be used for close contacts who are in immediate danger of acquiring the disease, as the immunisation provided is of short duration (2 weeks). In all other cases active immunisation is preferable.

(a) Diphtheria.

1. Passive. One-two thousand units of antidiphtheritic serum should be given subcutaneously.

2. Active. The three methods in common use are: three doses of 1 c.c. of Formol-Toxoid at two-three weeks' intervals: three doses of 1 c.c. of Toxoid-Antitoxin Floccules at two-three weeks' intervals: and two doses of 0.2. c.c. and 0.5 c.c. of alum-precipitated Toxoid at four weeks' interval. Within reason, the longer the interval the greater the immunising response. Formol Toxoid is liable to cause reactions in children over eight. Posterior Schick tests should be performed to ascertain that immunity has been induced.

(b) Scarlet Fever.

1. Passive. 5-10 c.c. of concentrated scarlet fever antitoxin or 0.75-1 c.c. of protein-digested serum should be given to Dick-positive reactors.

2. Active. Immunity can be obtained by giving 5 injections totalling 80,000 skin-test doses and graduated approximately into 500-1000, 2000-3000, 10,000, 25,000 and 40,000 skin-test doses. Reactions are not uncommon.

(*c*) *Whooping Cough.*

1. Passive. Convalescent human serum may be of value.

2. Active. To assure a high degree of immunity large doses of organisms in Phase I are essential. The dosage recommended varies from 20-80 billions in three-six injections.

(*d*) *Measles.*

1. Passive. Serum from patients convalescent from measles or from adults known to be immune may be used for the prevention or attenuation of the disease in contacts. Dosage for prevention in children one to five days after exposure is 5 c.c. of convalescent or 10 c.c. adult immune serum : for attenuation is 2.5 c.c. of convalescent or 5 c.c. of adult immune serum for children one to five days after exposure, and double the dose for children inoculated six-nine days after exposure. Whole blood (20-40 c.c.) and placental extracts are other passive prophylactic agents.

2. Active. No satisfactory antigen available.

APPENDIX E.

The various rules and regulations for isolation and quaran tine after exposure to infection were originally drafted in an attempt to keep infectious diseases out of residential schools. In this object they have failed to a great extent in the bigger public schools. Statistics for the last thirty years taken from some of these schools seem to show that the result has been at best a small diminution in the number of epidemics only, and no diminution in the number of cases. In other words the attempt to exclude infection, by its occasional success has merely resulted in more widespread outbreaks later on, with the occurrence in some schools of more serious cases, especially in the case of measles.

This failure in public schools is due partly to the comparative success that has attended the efforts to keep infection out of preparatory schools.

The suggestion has therefore been made by some Public School Medical Officers that, as an alternative measure, observation of contacts IN schools should take the place of the exclusion of contacts FROM schools in the case of the non-notifiable infections, and that the non-immune pupil, if a contact during the holidays, should be allowed to return to school at the beginning of term, and that after an attack the criterion of his return to school work should be the state of his own health. By this plan they anticipate that whilst the actual number of epidemics may at first be somewhat increased, their severity will be lessened and the total number of cases decreased by increasing the "herd immunity," thus effecting a saving in school time, cost and anxiety.

In all cases where this policy is adopted it is essential that all parents be informed of the change of procedure and the reason for its adoption.

APPENDIX F.

TREATMENT OF TINEA.

Tinea of the scalp. The only satisfactory form of treatment is epilation by X-rays or thallium acetate. Epilation should be undertaken only by experts. In view of a possible permanent alopecia, the consent of the parents should be obtained. The hair begins to fall 18 to 21 days after treatment, and continues for about a week. The pupil should be excluded from school:—

(*a*) certainly until epilation is complete;

(*b*) preferably until the new hair has grown, to an aesthetic length.

In a small percentage of cases the first epilation may not successfully eradicate the fungus. In every case a certificate of freedom from inspection should be received from the dermatologist undertaking the treatment before the pupil is allowed to return to school.

Tinea of the body usually responds rapidly to a few daily applications of a fungicide, *e.g.*, the liniment or tincture of iodine, compound benzoic and salicylic acid ointment (Whitfield's), or 2 per cent. cignolin ointment. Another method is to scrub the patches with 2 to 4 per cent. silver nitrate and then apply tincture of iodine; the silver iodide which forms acts as a fungicide.

Tinea of the feet is extremely obstinate, and relapses are common, particularly during warm weather. It can rarely be eradicated if the toe-nails are involved. The principles underlying treatment are:—

(i) To allow free evaporation of sweat from the feet, thereby minimising alkaline decomposition of the sweat by:—

(*a*) the use of boilable cotton socks;

(*b*) the wearing of sandals;

(*c*) separation of the toes by lamb's wool.

(ii) To alter the reaction of the soil, *i.e.*, to render it acid by the use of one of the following:—

(*a*) 0.4 per cent. concentrated hydrochloric acid in 70 per cent. alcohol, painted on several times a day, and then replaced by (*b*);

(*b*) a powder consisting of equal parts of boric acid and talc;

(*c*) a powder containing 1 to 2 per cent. of salicylic acid in talc.

(iii) To apply a fungicide. Various preparations are used, and it may be necessary to continue treatment for weeks or months. Before application, which shall be made once or twice daily, sodden skin between the toes should be removed with forceps:—

Benzoic and salicylic acids (as in Whitfield's ointment or paint).

Castellani's basic fuchsin paint.

Sodium hyphochlorite (1 per cent. solution of chlorinated soda).

Thymol.

Iodine in potassium iodide.

Chrysarobin ointment, 8 per cent.

2 per cent cignolin in benzine.

To prevent auto-inoculation in other parts of the body a separate foot towel is desirable.

Tinea Cruris usually responds rapidly to the vigorous application of a fungicide such as cignolin ointment 2 per cent., Whitfield's ointment or chrysarobin ointment 8 per cent. The following method is usually very successful:—

At the outset the whole surface of the body, particularly the groins, axillae, natal cleft and feet should be examined. The patient should be isolated and kept in clean pyjamas during treatment. For three days, once daily, dressings spread with cignolin ointment 2 per cent., in soft paraffin are applied with bandages. Even if one thigh only is affected, both should be thus treated. At the end of this period only disinfected or non-infected clothing should be worn, and the patient may be discharged. As an additional precaution Whitfield's ointment should be applied nightly for a week to the treated areas.

Treatment of the toes and feet should follow the lines indicated above.

Adequate disinfection of infected clothing by boiling or by pressure steam to prevent re-infection is, of course, a necessary part of the treatment.

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